

Index to Volume 23 (2002)

Number 1 pp. 1–126

Number 2 pp. 127–238

Number 3 pp. 239–354

Number 4 pp. 355–450

Number 5 pp. 451–522

Number 6 pp. 523–596

Number 7 pp. 597–680

Number 8 pp. 681–768

Article Index

Number 1

Grouping materials and processes for the designer: an application of cluster analysis

K.W. Johnson, P.M. Langdon and M.F. Ashby 1

On the selection of shape memory alloys for actuators

W. Huang 11

A numerical and experimental approach to optimise sheet stamping technologies: polymers thermoforming

G. Sala, L. Di Landro and D. Cassago 21

Fracture toughness and wear resistance of aluminum-boron particulate composites cast using metallic and non-metallic chills

J. Hemanth 41

Simulation and design for stratified iron fiber absorbing materials

X. Yu, X. Zhang, L. Huahui and H. He 51

Investigations of the formability of BCC steel sheets by using crystalline plasticity finite element analysis

C.L. Xie and E. Nakamachi 59

Dynamic properties of an ER fluid under shear and flow modes

H.-G. Lee and S.-B. Choi 69

Comparison and analysis of continuously jetting and discretely jetting method used in rapid ice prototype forming

C. Feng, Y. Yan and R. Zhang 77

Characterisation of the laser-clad stellite layers for protective coatings

R. Jendrzewski, A. Conde, J. de Damborenea and G. Sliwinski 83

The effects of the aggregation structure parameters on impact-fractured surface fractal dimension and strain-energy release rate for polypropylene

J. Yu, T. Xu, Y. Tian, X. Chen and Z. Luo 89

Solid freeform fabrication of metal components using fused deposition of metals

G. Wu, N. A. Langrana, R. Sadanji and S. Danforth 97

Technical Reports

Testing is required to select seal materials for blister-prone applications

N. Fechter 107

Computer simulation of mechanical seal leads to design change that improves coolant circulation

R. Clark, H. Azibert and L. Oshinowo 113

Number 2

Special issue: in Production and Processing of Aluminium

Guest Editorial

S.M.A. Suliman 127

The cyclic fatigue and final fracture behavior of aluminum alloy 2524

T.S. Srivatsan, D. Kolar and P. Mag-nusen 129

An investigation of the cyclic fatigue and fracture behavior of aluminum alloy 7055

T.S. Srivatsan 141

The effects of aging on the hardness and fatigue behavior of 2024 Al alloy/SiC composites

N.E. Bekheet, R.M. Gadelrab, M.F. Salah and A.N. Abd El-Azim 153

Study of thermal cycling effects of Al–Ni turbine blades on their lifetime

M.A. Zamzam, A.S. El-Sabbagh and M.M. Milad 161

Creep behavior of spray-cast 7XXX aluminum alloy

S.A.J. Jahromi 169

Degradation of aluminum metal matrix composites in salt water and its control

Z. Ahmad and B.J. Abdul Aleem 173

Mechanical properties of Al–2.5 Mg–0.1 Mn–Si–Cr–Fe alloys
A.N. Shuaib 181

Effect of mould tilt angle on the mechanical properties of as-cast aluminium alloy
E. Hamzah, D. Prayitno and M.Z.M. Ghazali 189

Relationship between formability and cast structures in end-chill directionally solidified Al–Cu alloys
M.A. Taha, N.A. El-Mahallawy and R.M. Hamouda 195

Effect of welding and weld repair on crack propagation behaviour in aluminium alloy 5083 plates
K. Shankar and W. Wu 201

Fatigue behaviour of aluminium alloy 7075 bolted joints treated with oily film corrosion compounds
K. Shankar and R. Dhamari 209

Spring-back and residual stresses in bending of thin-walled aluminium tubes
H.A. Al-Qureshi and A. Russo 217

Finite element analysis of springback in bending of aluminium sheets
V. Esat, H. Darendeliiler and M. Ilhan. Gokler 223

Managing fire protection issues in an aluminium rolling mill within the confines of the Montreal Protocol
M. Earp 231

Number 3

Direct laser fabrication and microstructure of a burn-resistant Ti alloy
X. Wu, R. Sharman, J. Mei and W. Voice 239

On cyclic stress–strain behaviour and low cycle fatigue life
S. Ganesh Sundara Raman and V.M. Radhakrishnan 249

Linking materials and design: an assessment of purpose and progress
K.L. Edwards 255

Debond induced by strain recovery of an embedded NiTi wire at a NiTi/epoxy interface: micro-scale observation
K.-T. Lau, A.W.-L. Chan, S.-Q. Shi and L.-M. Zhou 265

An investigation on the effect of carbon and silicon on flow behavior of steel
S. Serajzadeh and A. Karimi Taheri 271

Interaction of active and passive vibration control of laminated composite beams with piezoceramic sensors/actuators
Y. Kyu. Kang, H. Chul. Park, J. Kim and S.-B. Choi 277

Designing expert system with artificial neural networks for in situ toughened Si_3N_4
Q. Zeng, J. Zu, L. Zhang and G. Dai 287

Influence of consolidation parameters on the microstructure and hardness of bulk copper samples made from nanopowders
T.S. Srivatsan, B.G. Ravi, A.S. Naruka, M. Petraroli, R. Kalyanaraman and T.S. Sudarshan 291

An investment methodology for materials
E.M.A. Maine and M.F. Ashby 297

Applying the investment methodology for materials (IMM) to aluminium foams
E.M.A. Maine and M.F. Ashby 307

Atmospheric corrosivity modeling — a review
P.R. Roberge, R.D. Klassen and P.W. Haberecht 321

The preparation and properties study of photocatalytic nanocrystalline/nanoporous WO_3 thin films
H. Wang, P. Xu and T. Wang 331

Seminar Report

15th International Plansee Seminar 2001, Reutte, Austria
G.S. Upadhyaya 337

Technical Report

Polypropylene degradation in NaOH environments
C.A. Baah and J.I. Baah 341

Number 4

Design and construction of a dynamometer for measurement of cutting forces during machining with linear motion
U. Şeker, A. Kurt and I. Çiftçi 355

Design of electrorheological dampers by means of finite element analysis: theory and applications
V. Noresson, N.G. Ohlson and M. Nilsson 361

Fracture behavior in a pressure vessel steel weld
C. Liu and S.D. Bhole 371

Effect of high-temperature surface hardening of metallic materials on their dimensional stability
B.J. Fernández, J. de Damborenea and J. Ruiz 377

Conjoint bending torsion fatigue — fractography
T. Goswami 385

Electrorheological and magnetorheological fluids in blast resistant design applications
A.K. El Wahed, J.L. Sproston and G.K. Schleyer 391

Selection of joining methods in mechanical design
C. LeBacq, Y. Brechet, H.R. Shercliff, T. Jeggy and L. Salvo 405

Product liability — 'a worked example'
J.E. Morgan 417

Investigation of high-pressure water flow treated muslin
H. Gu 423

Thermo-ductile composites: new materials for 21st century manufacturing — micro-perforation symmetry
R.A. Ford 431

Product-package system: thermal aging and its influence on the mechanical performances of blown bottles. Relationship with design and process conditions

R. Ayad, L. Safa and S. Marull 441

Number 5

Flow stress behavior and deformation characteristics of Ti-3Al-5V-5Mo compressed at elevated temperatures
L.X. Li, Y. Lou, L.B. Yang, D.S. Peng and K.P. Rao 451

Materials selection combined with optimal structural design: concept and some results
N.S. Ermolaeva, K.G. Kaveline and J.L. Spoormaker 459

Shape memory alloy actuators for active disassembly using 'smart' materials of consumer electronic products
J.D. Chiodo, N. Jones, E.H. Billett and D.J. Harrison 471

Wear behavior of chilled (metallic and non-metallic) aluminum alloy-glass particulate composite
J. Hemanth 479

Physical properties of some thermomechanically processed microalloyed steels
S.P. Chaudhuri, R.K. Mahanti, C.S. Sivaramakrishnan and M.P. Singh 489

Thought about the exponential item in formulas calculating tensile strength for high-porosity materials
S.B. Zhao 497

A numerical model of wire melting rate in CO₂ gas-shielded welding
X. Yi, P. Shan, S. Hu and Z. Luo 501

Selection of aluminium alloys for extrusion profiles: methodology and development of a specialised software
G. Heiberg, Y. Brechet, O. Jensrud and H.J. Roven 505

A simple technique for measurement of apparent viscosity of slurries: sand-water system
P.K. Biswas, K.M. Godiwalla, D. Sanyal and S.C. Dev 511

Number 6

Numerical simulation of powder com-

paction processes using an inelastic finite element analysis
A.R. Khoei 523

Effects on residual stresses of annealing parameters in high-temperature ZrO₂ insulation coatings on Ag/Bi-2212 superconducting tapes using finite element method
Y. Islamoglu, E. Celik, C. Parmaksizoglu and Y.S. Hascicek 531

Strength and ductility characteristics of reinforcing steel bars milled from scrap metals
C.K. Kankam and M. Adom-Asamoah 537

Analysis of the creep behaviour of modified P91 (9Cr-1Mo-NbV) welds
S. Spigarelli and E. Quadri 547

An analysis of impeller parameters for aluminium metal matrix composites synthesis
N. Aniban, R.M. Pillai and B.C. Pai 553

Computation design and performance prediction towards a multi-layer microwave absorber
M. Cao, J. Zhu, J. Yuan, T. Zhang, Z. Peng, Z. Gao, G. Xiao and S. Qin 557

Graded machinable Si₃N₄/h-BN and Al₂O₃/LaPO₄ ceramic composites
R. Wang, W. Pan, J. Chen, M. Fang, M. Jiang and Y. Luo 565

Debonding between coating and substrate due to rolling-sliding contact
K. Aslantas and S. Tasgetiren 571

Technical Report

Silicon carbide bushings help sealless pump prevent production losses
L. Harmon 577

Corrigendum to 'Room temperature dissolution of metal powders by thiourea: a novel route to transition metal isothiocyanate complexes'
J.D. Harris, W.E. Eckles, A.F. Hepp, S.A. Duraj, P.E. Fanwick, J. Richardson and E.M. Gordon 581

Number 7

The effect of martensite particle size on tensile fracture of surface-carburised AISI 8620 steel with dual phase core microstructure
M. Erdogan and S. Tekeli 597

Friction and wear behaviour of implanted AISI 316L SS and comparison with a substrate
H. Dogan, F. Findik and O. Morgul 605

Grooves effect on crashworthiness characteristics of thin-walled tubes under axial compression
G.H. Daneshi and S.J. Hosseini-pour 611

Materials selection in mechanical design for microsensors and microactuators
J. Qian and Y.-P. Zhao 619

Residual stress analysis of Ti-ZrO₂ thermal barrier graded materials
T. Lidong and L. Wenchao 627

The influence of technical testing methods on perceptions of constructions
G. Östberg 633

Effects of porosity on thermal loadings of functionally graded Y₂O₃-ZrO₂/NiCoCrAlY coatings
A. Polat, O. Sarikaya and E. Celik 641

Effects of residual stress on thickness and interlayer of thermal barrier ceramic MgO-ZrO₂ coatings on Ni and AlSi substrates using finite element method
O. Sarikaya and E. Celik 645

Towards more strategic product design for manufacture and assembly: priorities for concurrent engineering
K.L. Edwards 651

Bi-objective optimization design of functionally gradient materials
J. Huang, G.M. Fadel, V.Y. Blouin and M. Grujicic 657

Technical Reports

The role of heat treatment on wear behavior of powder metallurgy low alloy steels

- H. Khorsand, S.M. Habibi, H. Yoozbashizadea, K. Janghorban, S.M.S. Reihani, H. Rahmani Seraji and M. Ashtari 667
- Tensile behavior of 3D woven composites by using different fabric structures
H. Gu and Z. Zhili 671
- Number 8**
- Influence of material properties and stamping conditions on the stiffness and static dent resistance of automotive panels
S. Holmberg and P. Thilderkvist 681
- Dynamic fracture toughness of X70 pipeline steel and its relationship with arrest toughness and CVN
Y. Liu, Y. Feng, Q. Ma and X. Song 693
- A prototype knowledge-based system for material selection of ceramic matrix composites of automotive engine components
S.M. Sapuan, M.S.D. Jacob, F. Mustapha and N. Ismail 701
- The research on aggregation structure of PP materials under different condition and the influence on mechanical properties
T. Xu, H. Lei and C. Xie 709
- Modulated structures of Fe-10Mn-2Cr-1.5C alloy
L. He, Z. Jin and J. Lu Jun Tang 717
- Abrasive wear behaviour of powder flame sprayed coatings on steel substrates
N. Kahraman and B. Gülenç 721
- The droplet ejection of an inkjet mechanism controlled by electrorheological fluid
C.-Y. Lee and C.-Y. Tseng 727
- Vibration characteristics of SMA composite beams with different boundary conditions
K.-t. Lau 741
- Parametric analyses of stitched composite T-joints by the finite element method
P.B. Stickler and M. Ramulu 751
- Author index**
- Abd El-Azim, A.N. 153
Abdul Aleem, B.J. 173
Adom-Asamoah, M. 537
Ahmad, Z. 173
Al-Qureshi, H.A. 217
Aniban, N. 553
Ashby, M.F. 1, 119, 297, 307
Ashtari, M. 667
Aslantas, K. 571
- Ayad, R. 441
Azibert, H. 113
- Baah, C.A. 341
Baah, J.I. 341
Bekheet, N.E. 153
Bhole, S.D. 371
Billett, E.H. 471
Biswas, P.K. 511
Blouin, V.Y. 657
Brecht, Y. 405, 505
- Cao, M. 557
Cassago, D. 21
Celik, E. 531, 641, 645
Chan, A.Wai.-L. 265
Chaudhuri, S.P. 489
Chen, J. 565
Chen, X. 89
Chiodo, J.D. 471
Choi, S.-B. 69, 277
Çiftçi, I. 355
Clark, R. 113
Conde, A. 83
- Dai, G. 287
Daneshi, G.H. 611
Danforth, S. 97
Darendeliler, H. 223
de Damborenea, J. 83, 377
Dev, S.C. 511
Dhamari, R. 209
Di Landro, L. 21
Dogan, H. 605
Duraj, S.A. 581
- Earp, M. 231
Eckles, W.E. 581
Edwards, K.L. 255, 345, 346, 347, 651
El Wahed, A.K. 391
El-Mahallawy, N.A. 195
El-Sabbagh, A.S. 161
Erdogan, M. 597
Ermolaeva, N.S. 459
Esat, V. 223
Evans, A. 119
- Fadel, G.M. 657
Fang, M. 565
Fanwick, P.E. 581
Fechter, N. 107
Feng, C. 77
Feng, Y. 693
Fernández, B.J. 377
Findik, F. 605
Fleck, N.A. 119
Ford, R.A. 431
- Gadelrab, R.M. 153
Ganesh Sundara Raman, S. 249
Gao, Z. 557
Ghazali, M.Z.M. 189
Gibson, L.J. 119
Godwalla, K.M. 511
Gokler, M.Ihan. 223
- Gordon, E.M. 581
Goswami, T. 385
Grujicic, M. 657
Gu, H. 423, 671
Gülenç, B. 721
- Haberecht, P.W. 321
Habibi, S.M. 667
Hamouda, R.M. 195
Hamzah, E. 189
Harmon, L. 577
Harris, J.D. 581
Harrison, D.J. 471
Hascicek, Y.S. 531
He, H. 51
He, L. 717
Heiberg, G. 505
Hemanth, J. 41, 479
Hepp, A.F. 581
Holmberg, S. 681
Hosseinipour, S.J. 611
Hu, S. 501
Huahui, L. 51
Huang, J. 657
Huang, W. 11
Hutchinson, J.W. 119
- Islamoglu, Y. 531
Ismail, N. 701
- Jacob, M.S.D. 701
Jahromi, S.A.J. 169
Janghorban, K. 667
Jeggy, T. 405
Jendrzewski, R. 83
Jensrud, O. 505
Jiang, M. 565
Jin, Z. 717
Johnson, K.W. 1
Jones, N. 471
- Kahraman, N. 721
Kalyanaraman, R. 291
Kang, Y.Kyu. 277
Kankam, C.K. 537
Karimi Taheri, A. 271
Kaveline, K.G. 459
Khoei, A.R. 523
Khorsand, H. 667
Kim, J. 277
Klassen, R.D. 321
Kolar, D. 129
Kurt, A. 355
- Langdon, P.M. 1
Langrana, N.A. 97
Lau, K.-T. 265
Lau, K.-t. 741
LeBacq, C. 405
Lee, C.-Y. 727
Lee, H.-G. 69
Lei, H. 709
Li, L.X. 451
Lidong, T. 627
Liu, C. 371
Liu, Y. 693

- Lou, Y. 451
 Lu, J. 717
 Luo, Y. 565
 Luo, Z. 89, 501

 Ma, Q. 693
 Magnussen, P. 129
 Mahanti, R.K. 489
 Maine, E.M.A. 297, 307
 Marull, S. 441
 Mei, J. 239
 Milad, M.M. 161
 Morgan, J.E. 417
 Morgul, O. 605
 Mustapha, F. 701

 Nakamachi, E. 59
 Naruka, A.S. 291
 Nilsson, M. 361
 Noresson, V. 361

 Ohlson, N.G. 361
 Oshinowo, L. 113
 Östberg, G. 633

 Pai, B.C. 553
 Pan, W. 565
 Park, H.Chul. 277
 Parmaksizoglu, C. 531
 Peng, D.S. 451
 Peng, Z. 557
 Petraroli, M. 291
 Pillai, R.M. 553
 Polat, A. 641
 Prayitno, D. 189

 Qian, J. 619
 Qin, S. 557
 Quadrini, E. 547

 Radhakrishnan, V.M. 249
 Rahmani Seraji, H. 667

 Ramulu, M. 751
 Rao, K.P. 451
 Ravi, B.G. 291
 Reihani, S.M.S. 667
 Richardson, J. 581
 Roberge, P.R. 321
 Roven, H.J. 505
 Ruiz, J. 377
 Russo, A. 217

 Sadanji, R. 97
 Safa, L. 441
 Sala, G. 21
 Salah, M.F. 153
 Salvo, L. 405
 Sanyal, D. 511
 Sapuan, S.M. 701
 Sarikaya, O. 641, 645
 Schleyer, G.K. 391
 Şeker, U. 355
 Serajzadeh, S. 271
 Shan, P. 501
 Shankar, K. 201, 209
 Sharman, R. 239
 Shercliff, H.R. 405
 Shi, S.-Q. 265
 Shuaib, A.N. 181
 Singh, M.P. 489
 Sivaramakrishnan, C.S. 489
 Sliwinski, G. 83
 Song, X. 693
 Spigarelli, S. 547
 Spoormaker, J.L. 459
 Sproston, J.L. 391
 Srivatsan, T.S. 129, 141, 291
 Stickler, P.B. 751
 Sudarshan, T.S. 291
 Suliman, S.M.A. 127

 Taha, M.A. 195
 Tang, J. 717
 Tasgetiren, S. 571
 Tekeli, S. 597
 Thilderkvist, P. 681

 Tian, Y. 89
 Tseng, C.-Y. 727

 Upadhyaya, G.S. 337

 Voice, W. 239

 Wadley, H.N.G. 119
 Wang, H. 331
 Wang, R. 565
 Wang, T. 331
 Wenchao, L. 627
 Wu, G. 97
 Wu, W. 201
 Wu, X. 239

 Xiao, G. 557
 Xie, C. 709
 Xie, C.L. 59
 Xu, P. 331
 Xu, T. 89, 709

 Yan, Y. 77
 Yang, L.B. 451
 Yi, X. 501
 Yoozbashizadea, H. 667
 Yu, J. 89
 Yu, X. 51
 Yuan, J. 557

 Zamzam, M.A. 161
 Zeng, Q. 287
 Zhang, L. 287
 Zhang, R. 77
 Zhang, T. 557
 Zhang, X. 51
 Zhao, S.B. 497
 Zhao, Y.-P. 619
 Zhili, Z. 671
 Zhou, L.-M. 265
 Zhu, J. 557
 Zu, J. 287